

Work Order ID 68174

Thursday, April 07, 2011 12:52:25 PM

Page 1

Item ID: D6104-003

Accept

Revision ID:

Item Name: Round Billet, 17-4

Start Date: 4/7/2011 Start Qty: 16.00

Required Date: 4/15/2011 Req'd Qty: 16.00

Reference:

Approvals:

Process Plan:

C2

Date: 11/04/07

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D6104

Rev B

100

0.00



PURCHASING

Purchasing

Memo

0.00

Purchasing

Issue P/O: 13826 ☐ a) Description: S.S round billet ☐ b) Ø3.25" x 3.80" long ☐ c) Tolerance on all dimensions are +0.030"/-0.000" ☐ d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630) ☐ e) One blank makes 2 parts ☐ f) Material certification required

C2 11/04/07 (16)

110

0.00



Receive & Inspct for Damage & Mat'l Certs

Packaging

Memo

0.00

Packaging

Ensure material certification is attached

P 11/04/20 (14)

120

0.00



QC6- Inspect dimensions to drawing

QC

Memo

0.00

Quality Control

Ensure Material certification comply to Dwg D6104

C2 11/04/20

16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 68174

Thursday, April 07, 2011 12:52:25 PM



Page 2

Item ID: D6104-003

Accept



Setup Start



Revision ID:

Stop



Item Name: Round Billet, 17-4

Start Date: 4/7/2011 Start Qty: 16.00



Cust Item ID:

Required Date: 4/15/2011 Req'd Qty: 16.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

Identify as per dwg & Stock Location: _____

0.00



Packaging

Memo

0.00

Packaging

MAT MF 11-04-26

140

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/4/26 MF

MF
11-04-26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Thursday, April 07, 2011 12:52:21 PM

Page 1

Work Order ID: 68174

Parent Item: D6104-003

Parent Item Name: Round Billet, 17-4





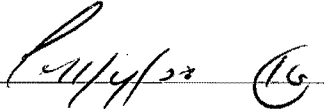
Start Date: 4/7/2011

Required Date: 4/15/2011

Start Qty: 16.00

Required Qty: 16.00

Comments: IPP B: ☐01.09.04☐Revised Step 2 SM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6104-003P  17-4 SS Roundbar 3.25"OD		Purchased	No			110	Each	0.0000	1 	16			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

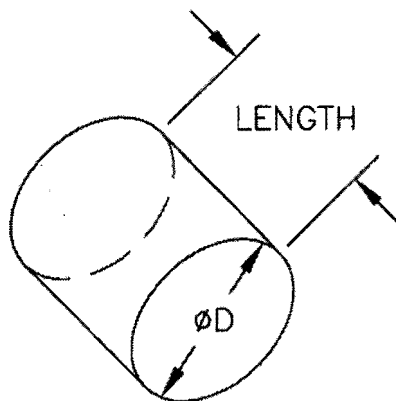


DESIGN RT	DRAWN BY [Signature]	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29 [Signature]

SPECIFICATION CONTROL DRAWING



CL 11/04/07

W10:68174

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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Don 44
B I L L O F L A D I N G

Ship From:
THYSSENKRUPP MATERIALS NA
2821 LANGSTAFF ROAD
CONCORD, ONTARIO L4K 5C6
Tel: 905 669 9444 Fax: 9057389033

No: PEC 707128
Ship Date 19Apr11 at 14:23 From PFW
Probill
Via VIM TRANSFER TRUCK
FOB CONCORD
Frt PREPAID
Route 0- 0 Manifest
Vhcle Trailer
Slp STAN IVERS (905-532-1350)
Sold To: (20115)
DART AEROSPACE
1270 ABERDEEN ST
HAWKESBURY, ON K6A 1K7

Ship To: (1)
DART AEROSPACE
1270 ABERDEEN ST
HAWKESBURY, ON K6A 1K7
Tel: 613-632-9577 Fax: 613-632-1053

B I L L O F L A D I N G

1) Our Order PEC-320102- 1 Your PO # 13826
Part # D6103-003 Rel #
ALUMINUM ROUND BAR 7075T7351
3.50" DIA X 12.5000"

NTR

Heat Number	Tag No	Quantity	PCS	Wt LBS
10028398	186288	26 ' .5000 "	25	305

2) Our Order PEC-320102- 2 Your PO # 13826
Part # D6104-003 Rel #
STAINLESS STEEL ROUND BAR 17-4 STAINLESS
3.25" DIA X 3.8000"

NTR

Heat Number	Tag No	Quantity	PCS	Wt LBS
7RC4	186289	5 ' .8000 "	16	141

TOTAL:	Tags	PCS	LBS
	2	41	446

Heat Number *** Chemical Analysis ***
7RC4

VIM TRANSFER TRUCK DELIVERY

MILL TEST REPORTS, PACKING SLIPS ARE TO SENT
WITH MATERIAL AND FAXED TO THE CUSTOMER PRIOR
TO SHIPPING.

ATTN: CHANTAL/LINDA

** ALL PACKING SLIPS MUST HAVE THE HEAT NUMBER **
** REFERENCED ON IT **

Page: 1Continued

Slips

Conf

TOUTES ERREURS ET/OU MARCHANDISES MANQUANTES DOIVENT ÊTRE
RAPPORTÉES IMMÉDIATEMENT.

ERRORS OR SHORTAGE MUST BE REPORTED IMMEDIATELY

RETOUR DE MARCHANDISES AVEC NOTRE NUMERO D'APPROBATION SEULEMENT.
MERCHANDISE MAY NOT BE RETURNED WITHOUT OUR APPROVAL NUMBER.

B I L L O F L A D I N G

No: PEC 707128

Ship From:
THYSSENKRUPP MATERIALS NA
2821 LANGSTAFF ROAD
CONCORD, ONTARIO L4K 5C6
Tel: 905 669 9444 Fax: 9057389033

Ship Date 19Apr11 at 14:23 From PFW
Probill
Via VIM TRANSFER TRUCK
FOB CONCORD
Frt PREPAID
Route 0- 0 Manifest
Vhcle Trailer
Slp STAN IVERS (905-532-1350)
Sold To: (20115)
DART AEROSPACE

Ship To: (1)
DART AEROSPACE

B I L L O F L A D I N G

TOTAL 2 SKIDS G.W. 496 LBS

*CUSTOMER PICK-UP HRS AT THYSSENKRUPP MATERIALS NA
CONCORD, ONT.* *** 9:00 AM TO 4:00 PM ***
***** TEL. 800-926-2600 *****

* WE STOCK STAINLESS STEEL *
* PLEASE LET US QUOTE YOUR NEXT REQUIREMENT *

***PLEASE NOTE A \$20.00 ENERGY SURCHARGE WILL BE
ADDED TO EVERY ORDER.***

Page: 2 Last

TOUTES ERREURS ET/OU MARCHANDISES MANQUANTES DOIVENT ÊTRE
RAPPORTÉES IMMÉDIATEMENT.

ERRORS OR SHORTAGE MUST BE REPORTED IMMEDIATELY

RETOUR DE MARCHANDISES AVEC NOTRE NUMERO D'APPROBATION SEULEMENT.
MERCHANDISE MAY NOT BE RETURNED WITHOUT OUR APPROVAL NUMBER.

REÇU EN BONNE CONDITIONS / RECEIVED IN GOOD CONDITION

DATE

TVQ/OST# 10173279R1 TQ001 TPS/GST TVH/HST # 140223934 RT0001

SHIP FROM:
THYSSENKRUPP MATERIALS NA
2821 LANGSTAFF ROAD
CONCORD, ONTARIO L4K 5C6
Tel: 905 669 9444 Fax: 9057389033

NO: PEC 707128
SHIP DATE 19Apr11 at 14:23 From PFW
Probill
Via VIM TRANSFER TRUCK
FOB CONCORD
Frt PREPAID
Route 0- 0 Manifest
Vhcle Trailer
Slp STAN IVERS (905-532-1350)
Sold To: (20115)
DART AEROSPACE

SHIP TO: (1)
DART AEROSPACE

B I L L O F L A D I N G

TOTAL 2 SKIDS G.W. 496 LBS

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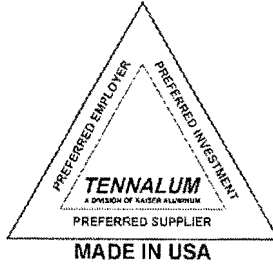
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TOUTES ERREURS ET/OU MARCHANDISES MANQUANTES DOIVENT ÊTRE
RAPPORTÉES IMMÉDIATEMENT.
ERRORS OR SHORTAGE MUST BE REPORTED IMMEDIATELY
RETOUR DE MARCHANDISES AVEC NOTRE NUMERO D'APPROBATION SEULEMENT.
MERCHANDISE MAY NOT BE RETURNED WITHOUT OUR APPROVAL NUMBER.

KAISER ALUMINUM FABRICATED PRODUCTS

Tennalum
PO Box 669
Jackson, TN 38302
731-423-2811



CERTIFIED TEST REPORT
<http://Certs.KaiserAluminum.com>

CUSTOMER PO NUMBER: 5400096705-10		CUSTOMER PART NUMBER: ALRD00373		PRODUCT DESCRIPTION: Cold Finished Round	
KAISER ORDER NUMBER: 668807	LINE ITEM: 1	SHIP DATE: 03/04/2011	ALLOY: 7075	TEMPER: T7351	
WEIGHT SHIPPED: 1123 lbs.	QUANTITY: 8 pcs.	B/L NUMBER: 32076	DIAM/DAF/THKNS: 3.500 in.	WIDTH: 0.000 in.	LENGTH: 144.0 in.
SHIP TO: Copper & Brass Sales, Inc. 13338 Orden Drive, Bldg. H Santa Fe Springs, CA 90670 USA			SOLD TO: Copper & Brass Sales Inc Attn: Accounts Payable P. O. Box 5116 Southfield, MI 48086-5116 USA		

Test Code: 1000 AC

Actual Physical Properties

Lot Number	LONG. UTS ksi	LONG. YTS ksi	LONG. ELONG. %	COND % IACS
10028398	71.8	60.1	16.0	38.8

Chemical Composition, WT. % (Aluminum Remainder)

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	OTHERS EACH	OTHERS TOTAL	Lot
Actual	0.08	0.21	1.5	0.03	2.8	0.19	6.0	0.03			10028398
Max	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.15	
Min			1.2		2.1	0.18	5.1				

Specifications

Standard: ISO 9001, ASTM B211-03, AMS 4124D, AMS-QQ-A-225/9

CERTIFICATION

These certifications are for:

Delivery #: 240214496

Date: 4/14/11

Qty: 750

By: Michael Robles

Quality check

Kaiser Aluminum & Chemical Corporation ("Kaiser") hereby certifies that the metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms and conditions of sale. Test reports are on file, subject to examination.

John Rennekamp, Quality Manager

John Rennekamp

Plant Serial: 151522

Kaiser Order Number: 668807

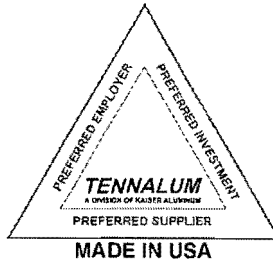
Line Item: 1

KAISER

ALUMINUM

FABRICATED PRODUCTS

Tennalum
PO Box 669
Jackson, TN 38302
731-423-2811



CERTIFIED TEST REPORT

<http://Certs.KaiserAluminum.com>

Miscellaneous Notes

Made in USA

This material was melted and manufactured in the USA. Mercury is not a normal contaminant in aluminum alloys. Neither mercury nor any of its compounds were utilized by Kaiser Aluminum in the manufacture of this material. AS9100B:2004 This material meets the requirements of (cold finished) T73 temper and QQ-A-225/9E (CANCELLED). Material is RoHS compliant.

CERTIFICATION

Kaiser Aluminum & Chemical Corporation ("Kaiser") hereby certifies that the metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms and conditions of sale. Test reports are on file, subject to examination.

John Rennekamp, Quality Manager

Plant Serial: 151522

Kaiser Order Number: 668807

Page 2 of 2

Line Item: 1

THYSSENKRUPP MATERIALS NA

DART AEROSPACE

STAINLESS STEEL ROUND BAR 17-4 STAINLESS

3.25" DIA X 3.8000"

PART NO. D6104-003

PO/Ref 13826

We certify that this is a true copy of the report furnished by the producer of the metal, or data resulting from tests made in approved labs.

Certificate of Mill Test Results

BL PEC-707128-002

19Apr11

Pg 1/1

Signed by:

54-98706



NORTH AMERICAN
STAINLESS

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 601298 01

Mail To:

SUMMIT STAINLESS STEEL, LLC.
2001 ELIZABETH STREET
NORTH BRUNSWICK NJ 08902

Ship To:

SUMMIT STAINLESS STEEL, LLC.
290 MADSEN DRIVE BLDG 100
BLOOMINGDALE IL 60108

Date: 11/16/2010 Page: 1 Of 1

Steel: 630

Finish: Cold Finish

Dia/Thk: 3.2500 in

Log Length:

Length: 144.00 in

Corrosion:

Customer: 0370 017

NAS Order: LN 66882 15

Your Order: NA21495

Item Code:

PRODUCT DESCRIPTION:

Round Bar, Annealed, Smooth Turned, Cold Finished
UNS S17400, EN 10204 3.1B, ASTM A484/08
ASTM A564/04 ASME SA564-07
AMS 5643R

REMARKS:

COMPLIES W/REQUIREMENTS OF DFARS EU DIRECTIVE 2002.95.
EC. ROHS. NAP+AOD+CC. NO WELD REPAIR. MELTED AND MFG IN USA
FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight
BD39819	1040							

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

Heat	Supplier #	CM	C	CB	CO	CR	CU	MN	MO	N	NI	P
7RC4		US	.037	.22	.05	15.49	3.27	.58	.19	.039	4.25	.026
			S	SI	TA	TI						
			.0099	.58	.0055	.0020						

MECHANICAL PROPERTIES

1 d o i c x	HB No.	Ferr %	TS-C KSI	YS-C KSI	EL-C %	RA-C %	RC-C No.
BD39819 R L	329.0	.20	210.05	184.01	13.08	43.39	43.0

NAS hereby certifies that the analysis on this certification is correct and the material meets the specifications stated.

QC ENGINEER

ERIC HESS

